

Glenn Research Center, Environmental Program Manual

Chapter 12 – RESPIRATORY PROTECTION PROGRAM

NOTE: The current version of this Chapter is maintained and approved by the Environmental Management Office (EMO). The revision date for this chapter is May 2002. If you are referencing paper copies, please verify that it is the most current version before use. The current version is maintained on the Glenn Research Center intranet at <http://osat-ext.grc.nasa.gov/emo/pub/epm/epm-contents.pdf>. Approved by: EMO Chief, Michael Blotzer {[mailto: Michael.J.Blotzer@grc.nasa.gov](mailto:Michael.J.Blotzer@grc.nasa.gov)}.

PURPOSE

This chapter establishes minimum requirements for the NASA Glenn Research Center (GRC) Respiratory Protection Program. It is intended to ensure employee protection from hazardous airborne materials through the implementation of engineering, work practice, and administrative controls to minimize employee exposure. When these controls do not effectively reduce employee exposures to safe levels, they will be used in conjunction with respiratory protection.

APPLICABILITY

The Respiratory Protection Program is applicable to all personnel (civil servants and contractors) who use respirators for protection of health or who may, on an emergency response basis, need to use respirators at the GRC and Plum Brook Station. The Respiratory Protection Program procedures described in this chapter will be followed except where substance-specific OSHA regulations contain more stringent or additional requirements.

DEFINITIONS

Air-purifying respirator

A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element. Assigned protection factor (APF) [Reserved]. This definition will be updated in a subsequent phase of OSHA's rulemaking.

Atmosphere-supplying respirator

A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SAR's) and self-contained breathing apparatus (SCBA) units.

Competent person

A person within the Industrial Hygiene Team who has demonstrated the knowledge and skills necessary to administer certain GRC Respiratory Protection Program procedures such as fit testing, training, hazard assessments, etc.

Demand respirator

An atmosphere-supplying respirator that admits breathing air to the face piece only when a negative pressure is created inside the face piece by inhalation.

Dusts

Solid particles mechanically generated by handling, crushing, grinding, sawing, rapid impact or detonation of organic or inorganic materials such as metal, coal, wood, and dirt.

Canister or cartridge

A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Emergency situation

Means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee exposure

Means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-service-life indicator (ESLI)

Means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Engineering controls

Are methods of controlling employee exposures to toxic materials by modifying the source or reducing the quantity of contaminants released into the workroom environment.

Escape-only respirator

A respirator intended to be used only for emergency exit.

Filter or air purifying element is a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering face piece (dust mask)

A negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.

Fit factor

A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test

Means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

Fumes

Airborne particulates formed by the evaporation of solid materials, e.g., metal fume emitted during welding. Usually less than 0.1µm in diameter.

Hazard assessments

Industrial hygiene evaluation of the health hazards posed by a specific operation or task.

Helmet

A rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter

Means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3µm in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood

A respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH)

Means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Interior structural firefighting

Means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures that are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)

Loose-fitting face piece

A respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC) [Reserved]

This definition will be updated in a subsequent phase of OSHA's rulemaking.

Mists

Suspended liquid droplets generated by condensation or by breaking up of a liquid into a dispersed state, such as by splashing, foaming or atomizing. Mist is formed when finely divided liquid is suspended in air.

Negative pressure respirator (tight fitting)

A respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere

Atmosphere with oxygen content below 19.5% by volume.

Permissible Exposure Limit (PEL)

The airborne concentration of a substance that, even on repeated daily exposure, will pose no adverse health effects to nearly all workers. PEL's are published and enforced by the Occupational Safety and Health Administration as a legal standard.

Physician or other licensed health care professional (PLHCP)

Is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section.

Positive pressure respirator

A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR)

Air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator

A positive pressure atmosphere-supplying respirator that admits breathing air to the face piece when the positive pressure is reduced inside the face piece by inhalation.

Qualitative fit test (QLFT)

A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent. QLFT provides only a pass/fail result.

Quantitative fit test (QNFT)

An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering

A portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a face piece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA)

An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life

Is the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator is an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Threshold limit value (TLV)

The airborne concentration of a substance to which nearly all workers may be repeatedly exposed without adverse health effects. TLV's are guidelines used in the practice of industrial hygiene. TLV's are published by the American Conference of Governmental Industrial Hygienists and are not legal standards.

Tight-fitting face piece

A respiratory inlet covering that forms a complete seal with the face.

User seal check

An action conducted by the respirator user to determine if the respirator is properly seated to the face.

Vapors

A gaseous form of a substance that is normally in the solid or liquid state at standard temperature and pressure.

POLICY

The Glenn Research Center (GRC), as part of its effort to provide a safe and healthful work environment, is committed to protect all employees from exposure to harmful concentrations of hazardous or toxic dust, fumes, mists, vapors, gases, or oxygen-deficient atmospheres. Where effective engineering controls are not feasible or while they are being instituted, respiratory protection measures described herein shall be used to protect workers. The Respiratory Protection Program encompasses all aspects of respiratory protection, from the initial hazard assessment, where the need for a respirator is determined, to the program evaluation, where the effectiveness of the program is assessed. The flow chart [Appendix A](#) provides an outline of the Respiratory Protection Program.

RESPONSIBILITIES

All employees and their respective supervisors shall be cognizant of and conform to the requirements of the program.

Specific responsibilities are:

Environmental Management Office (EMO) Industrial Hygiene Team (IHT)

- Designate a Program Administrator
- Implement this written Respiratory Protection Program.
- Perform Hazard Evaluations.
- Develop worksite-specific procedures and elements for respirator use.
- Conduct user training for SCBA.
- Conduct training for supervisors on the GRC Respiratory Protection Program
- Provide information on the specific use of the respirator to the Physician or Other License Health Care Professional (PLHCP)
- Maintain air compressor and components for compressed air cylinders.
- Provides guidance on the selection, use, and fitting of respiratory protection.
- Conduct annual fit tests.
- Maintain fit test records
- Confirm demonstration of employee proper use of respirator (donning, removing, and cleaning).
- Perform periodic program evaluation.

Medical Services

- Administer medical questionnaire and conduct spirometry test annually.
- Provide a written opinion regarding the employee's physical ability to use a respirator, any limitations of use, and the need for any follow-up evaluations.
- Enter employee information into database.
- Maintain records of medical evaluations.

Learning Center

- Show respiratory protection program training video.
- Administer short quiz after employee completes training video and forward the quiz to the IHT.

Plum Brook Management Office (PBMO)

- Administer this Respiratory Protection Program for Plum Brook Station.

Supervisors

- Be familiar with the Program requirements and ensure their employees comply with them.
- Support the Respiratory Protection Program as it relates to the needs of their employees.
- Participate in Respiratory Protection Program training for supervisors.
- Support the IHT in identifying needed hazard evaluations.

Employees

- Comply with all aspects of the program including but not limited to annual respirator fit testing, annual respirator training, and annual medical spirometry tests. Comply with the proper procedures for using, cleaning, maintaining, and storing the respirator
- Support the IHT in identifying needed hazard evaluations.
- Notify the IHT when using the respirator for materials other than those in the most recent hazard assessment.

Contractors

- Provide, manage, and implement their respiratory protection programs. Contractor respiratory protection programs shall comply with all Occupational Safety and Health Administration (OSHA) regulations as well as with the GRC program.

Students

- Co-op students are employees of GRC and are included in the GRC Respiratory Protection Program
- Student interns are employees of their respective universities and thus would not be covered by the GRC Respiratory Protection Program; however, since the student is working in the confines of GRC, the IHT can assist by conducting a hazard assessment of the operation.

REQUIREMENTS

Selection of Respirators

Proper selection of respirators shall be made according to 29 CFR 1910.134 and with the guidance of the American National Standards Institute (ANSI) "Practices for Respiratory Protection" Z88.2.

All respirators shall be approved and certified by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR Part 84. Air-purifying respirators shall not be used in oxygen deficient atmospheres, IDLH atmospheres

or unknown atmospheres. Only full-face piece respirators shall be used in contaminant concentrations that produce eye irritation.

When appropriate, employees may choose to use a Powered Air Purifying Respirator (PAPR) in lieu of a negative pressure respirator. Purchase and use of a PAPR is subject to the approval of the IHT; however, if the PLHCP determines that an employee's health is at increased risk if a negative pressure respirator is used, the employee will be provided a PAPR if the PLHCP determines that such a respirator can be used.

Disposable filtering face pieces may be used for nuisance particulate levels. Use of disposable respirators does not require a medical spirometry test or fit test but does require training and compliance with all other aspects of the Respiratory Protection Program, the written approval of an industrial hygienist, and the information provided in [Appendix B](#).

Respirators must first be chosen based on the identification and evaluation of workplace hazards. Assigned protection factors, using NIOSH recommend protection factors and the professional judgment of an industrial hygienist (whichever is more conservative) shall be used for determining the appropriate respirator. OSHA assigned protection factors will replace the NIOSH recommended protection factors after the data is reviewed and published in 29 CFR 1910.134.

For protection against gases and vapors GRC will provide an atmosphere supplying respirator or an air-purifying respirator with an end of service life indicator certified by NIOSH for the contaminant. Where no end of service life indicator is available, a change out schedule based on objective information or data must be established. Objective data may be obtained through the manufacturer or through testing breakthrough times for a chemical under the specific conditions in which it will be used.

For protection against particulates GRC will provide an atmosphere supplying respirator or an air-purifying respirator equipped with a filter certified by NIOSH under 42 CFR 84.

Use of Respirators

Before a respirator is used, an industrial hygienist must establish work site-specific information or a competent person designated by an industrial hygienist. Detailed information should include a description of the task for which the respirator will be used, frequency of use, average duration of use at any one time, chemical hazards involved, other necessary protective clothing, measured or estimated exposures, and the appropriate respiratory protection for the task. Respirators shall be used only for the chemicals and tasks for which they have been assigned.

If the user intends to use the respirators in unknown atmospheres or in the presence of hazardous materials other than those in the hazard assessment, the user shall request a new hazard assessment.

Respirators may not be worn under conditions that would interfere with the face piece-to-face seal or good fit. Examples of such conditions include facial hair, facial scars, eyeglasses with sidebars, and headgear that interferes with the seal. Any facial hair that interferes with the face piece-to-face seal or the operation of the inhalation or exhalation valves must be completely shaved for tasks requiring respirator use. If glasses must be worn, they must not interfere with the seal of the face piece. A respirator spectacle kit will be issued when a full-face piece respirator is required.

Before entering the work area, employees shall perform a user seal check for all tight fitting face pieces. Details on how to perform a user fit and seal check may be found in [Appendix D](#).

Should an emergency situation develop in an area where respirator usage is required, such as a spill, fire, explosion or an IDLH atmosphere, leave the area and call 911 Glenn Dispatcher.

Emergency use of respirators required for GRC employees shall first require the approval of the IHT. All emergency use respirators shall be administered and controlled by the IHT. See the section on "Emergency Use of Respirators".

Maintenance of Respirators

Workers are responsible for the maintenance of their personal respirators. Oversight shall be provided by their supervisors and IHT.

Respirators shall be cleaned and disinfected after each use. If the respirator is used periodically throughout the day it should be cleaned at the end of the day. The respirator shall be cleaned according to the recommendations provided by the manufacturer or by using the following procedures:

- Disassemble respirator completely.
- Wash in warm water with mild detergent (with a disinfecting agent).
- Rinse all components in clean, warm water.
- Allow components to air dry or hand dry with a lint free cloth.
- Reassemble face piece.

Respirators shall be stored (sealed plastic bags, when dry) in a manner that protects them from damage, dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals. They shall be stored to prevent deformation of the face piece or the exhalation valve.

Respirators for emergency use must be clearly marked and stored where they are always accessible.

Respirator shall be inspected before each use and during cleaning. Inspections shall include respirator function, tightness of connections, and the condition of the face piece, head straps, valves, connecting tube, and cartridges, canisters, or filters and the pliability of rubber/silicone parts for signs of deterioration. Replacement parts must be NIOSH certified.

Emergency use respirators shall be inspected and tagged at least monthly as well as being inspected before and after each use. The SCBA inspection must be documented including the date of inspection, person doing inspection, required remedial action, and identification number for the SCBA. The documentation must be on a tag or label attached to the storage compartment for the SCBA.

All respirators issued by the IHT that fail to pass inspection shall be removed from service and returned to the IHT for repair or disposal.

Replacement of respirator filters or cartridges shall be in accordance with a schedule established by an industrial hygienist or designated competent person. Replacement filters or cartridges shall be obtained from Stores Stock. If the necessary cartridges are not available from stock they may be purchased from an outside vendor.

Voluntary Use of Respirators

Use of respirators voluntarily requires that employees receive their annual medical examination and are provided the information in [Appendix B](#) that addresses the safe use of a respirator.

Voluntary use of a filtering face piece does not require inclusion in the Respiratory Protection Program; it does however, require that the employee receive and understand the information in [Appendix B](#).

Confined Spaces

All respirator use in confined spaces will also comply with the requirements of the Glenn Safety Manual Chapter "Confined Spaces."

Respirator Use in Immediately Dangerous to Life or Health Atmospheres

When emergency use of respiratory protection is required, call 911 Glenn Dispatcher. Examples of such situations include unknown atmospheres, rescue of workers from a confined space, oxygen deficient atmospheres, IDLH atmospheres, or a situation where an employee may be overcome by toxic vapors.

Only full-face piece pressure-demand supplied-air respirators (SAR) with an auxiliary self-contained air supply or self-contained breathing apparatus (SCBA) may be used in an unknown, oxygen deficient, or IDLH atmosphere. Each SCBA used in IDLH atmospheres or for emergency entry or fire fighting shall be certified for a minimum service life of 30 minutes.

SAR's and SCBA's shall only be used by personnel trained in their use and limitations. Users of SCBA will receive training specific to their SCBA equipment on an annual basis.

The buddy system shall be used where at least one standby person shall be present in a safe area and equipped with the same level of protection as the employee in the IDLH area. Communication (visual, voice, or signal) shall be maintained at all times between the standby person and the individual in the IDLH atmosphere. The employee outside of the IDLH atmosphere must be trained and equipped to provide effective emergency rescue.

Respirator wearers in IDLH atmospheres shall be equipped with retrieval equipment for lifting or removing them from the area or equivalent provisions for rescue shall be in place.

Breathing Air Quality and Use

Breathing air used for respiration shall be of high quality purity. At a minimum, it must meet the specifications outlined in 29 CFR 1910.134(i) which are the minimum requirements for Type 1- Grade D breathing air as described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.

Cylinders of breathing air must be tested and maintained as prescribed in 49 CFR Part 173 and 178. They must come with a certificate of analysis from the supplier that the breathing air meets the requirements for Type 1- Grade D breathing air.

Compressors used to supply breathing air must be constructed and situated as to prevent entry of contaminated air in the air-supply stream, minimize moisture content. They must be equipped with suitable in-line sorbent beds and filters and an in line carbon monoxide monitor. The filters and sorbent beds must be tagged with information including the most recent change date and a signature of the person who performed the change.

Identification of Filters, Cartridges, and Canisters

All filters, cartridges, and canisters used in the workplace shall be properly labeled and color coded with a NIOSH approved label as required by 42 CFR Part 84 before and during their service life.

Respirator users are categorized as either Active or Inactive. Active respirator users are those GRC employees and students who are presently using a respirator. Inactive respirator users are those employees who no longer use their respirator and those who are no longer employed by GRC.

Program Evaluation

The IHT shall evaluate the effectiveness of the respirator program as part of the GRC Facility Inspection Program described in the Glenn Safety Manual. During the evaluation, respirator program participants and their immediate supervisors will be interviewed. The interviews will be used to evaluate wearer acceptance of the respirator program (as to respirator selection, training, donning and fit, maintenance, storage, medical aspects) and to appraise the protection afforded based on monitoring data. This annual evaluation shall be documented. In addition, random inspections shall be conducted to ensure compliance with the program.

PROCEDURES

Hazard Assessment

Before the selection and assignment of a respirator, an industrial hygienist, or a competent person under the supervision of an industrial hygienist, shall perform a hazard evaluation of the task that may require respiratory protection. The evaluation shall include the nature of the hazard, reasonable estimate or actual levels of exposure, identification of the chemical state and physical form, and the length of time the respiratory protection is required.

Where a reasonable estimation of employee exposure cannot be determined, the atmosphere must be considered immediately dangerous to life or health (IDLH).

Whenever possible, air contaminants shall be controlled by accepted engineering control measures (e.g., enclosure, ventilation, wet methods, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

Training Program

The IHT shall provide training for each employee who is required to wear a respirator. Training shall be conducted by an industrial hygienist or a competent person designated by an industrial hygienist prior to use and annually thereafter. If an employee is unable to stay up-to-date in the training program, that employee is no longer capable of wearing the respirator and therefore is no longer able to perform the tasks requiring respiratory protection. The IHT has the authority to retrieve respirators from employees out of compliance with the program.

Written records shall be kept for the duration of employment and shall include names, training dates, and subject areas covered. The subjects covered by the training are outlined in [Appendix C](#).

Medical Surveillance

Only persons found to be physically able shall be assigned a task requiring the use of a respirator. The Physician or Other Licensed Health Care Professional (PLHCP) shall conduct a medical questionnaire that meets the requirements of 29 CFR 1910.134. The PLHCP may also include any other health and physical conditions that are pertinent, and shall perform a pre-placement medical examination. The PLHCP shall prepare a written opinion regarding the employee's physical ability to use a respirator, any limitations of use and the need for any follow-up evaluations. A copy of the written opinion shall be sent to the IHT for inclusion in the Respiratory Protection Program files.

Before the PLHCP makes a recommendation on the employee's ability to use a respirator, the Industrial Hygiene Team must provide information on the type and weight of the respirator to be used, the duration and frequency of use, the expected physical work load, additional protective clothing worn, and temperature and humidity extremes that may be encountered.

The medical evaluation must be completed before the employee is fit tested or required to use the respirator in the workplace.

The employee's medical status shall be reviewed annually by a PLHCP. If an employee is unable to stay up-to-date in the medical surveillance program, that employee is no longer capable of wearing the respirator and therefore is no longer able to perform the tasks requiring respiratory protection. The IHT has the authority to retrieve respirators from employees out of compliance with the program.

The employee's medical status shall also be reviewed whenever the employee experiences medical signs or symptoms that are related to the ability to use the respirator or information including observation during fit testing or program evaluation indicates a need for an re-evaluation.

Records of medical evaluations will be maintained and made available in accordance with 29 CFR 1910.1020.

Fit Testing

The employee shall be fitted with a respirator from a selection that includes at least three sizes of each type of face piece from at least two different manufacturers. An industrial hygienist shall choose the appropriate respirator or a designated competent person based on the hazard assessment, fit testing, and comfort.

Employees required to wear tight-fitting air-purifying respirators (that is, respirators dependent on a face piece-to-face seal) and tight-fitting atmosphere-supplying respirators shall be fit tested to ensure that the respirator selected fits the employee well enough to provide the adequate protection.

The employee shall be fit tested after the initial medical surveillance but prior to the first use of the respirator and annually thereafter. If an employee is unable to stay up-to-date with fit tests, that employee is no longer capable of wearing the respirator and therefore is no longer able to perform the tasks requiring respiratory protection. The IHT has the authority to retrieve respirators from employees out of compliance with the program.

The fit test's used shall be in accordance with OSHA standard 29 CFR 1910.134 and shall be approved by the IHT.

A qualitative fit test may only be used to fit test a negative pressure air-purifying respirator that must achieve a fit factor of 100 or less. If a qualitative fit test is used, the air-purifying respirators may only be used in atmospheres that do not exceed 10 times the established permissible exposure limit.

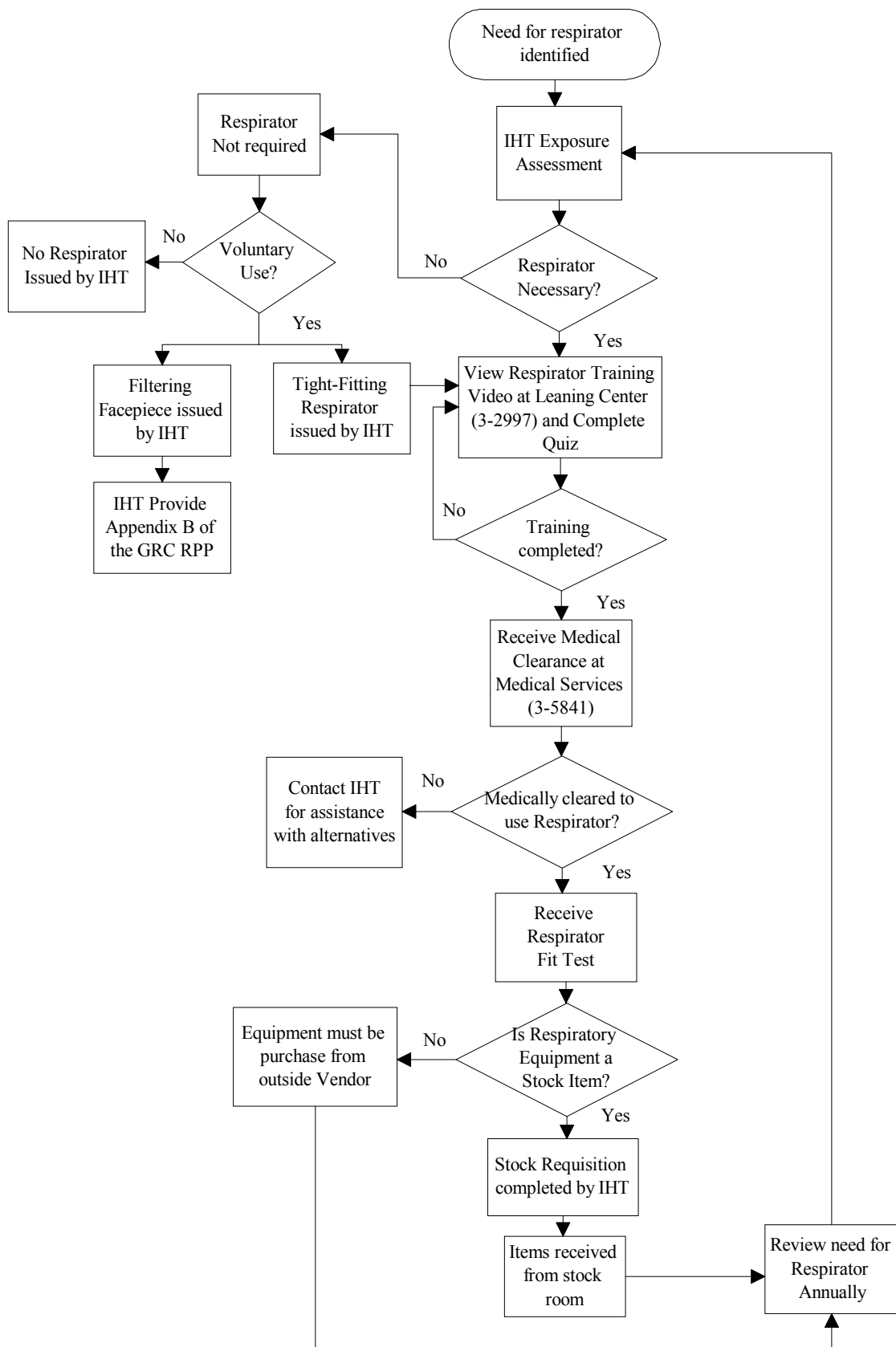
A quantitative fit test may be used in lieu of a qualitative fit test but for fit factors equal or greater than 100, a quantitative fit test must be passed.

The half-mask air-purifying respirator may only be used in atmospheres that do not exceed 10 times the established permissible exposure limit. The full-face piece air-purifying respirators may only be used in atmospheres that do not exceed 50 times the established permissible exposure limit.

For tight-fitting atmosphere-supplying respirators, a quantitative fit test must be used. The face piece shall be tested as a negative pressure respirator, without the air-supplying equipment or attachments. If the respirator face piece passes the test, the assigned protection factor shall be in accordance with those established by OSHA.

Respirator fit testing records shall be kept for the duration of employment.

Appendix A: Respiratory Protection Program Flow Chart



Appendix B:

Information for Employees Using Respirators When Not Required Under the Standard (Appendix D of 29 CFR 1910.134)

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators imitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Appendix C: Elements of a Respiratory Protection Training Program

- Respiratory hazards to which an employee may be exposed.
- Operation and proper fit of the respirator.
- Limitations and capabilities of the selected respirator.
- Inspection, donning, and removal of the respirator, including checking the fit and seals in the wearing of the respirator.
- Maintenance and storage of the respirator.
- Respirator malfunctions.
- Respirator use in emergency situations.
- Recognition of medical signs and symptoms that may limit or prevent the effective use of respirators.
- Aspects of the written Respiratory Protection Program.
- The training will also include sufficient practice to enable the employee to become confident in the use of the respirator.
- All supervisors of employees required to wear respirators shall also be trained in respirator selection, use, and maintenance.
- Demonstrate knowledge of training elements.

Appendix D: Procedures for Performing a User Fit and Seal Check when Donning a Tight Fitting Respirator

Positive Pressure Test: A positive pressure test is performed by closing off the exhalation valve and exhaling gently into the face piece. If a slight positive pressure is built up in the face piece then the fit is satisfactory.

Negative Pressure Test: A negative pressure check is performed by closing off the inlet openings with the palm of the hands and inhaling gently so the face piece collapses slightly. The user should hold their breath for 10 seconds and feel for any leaks around the perimeter of the face piece.

RECORDS

- Respirator Training
- Respirator User Database
- Hazard Evaluations

Office of Safety and Assurance Technologies ([OSAT](#))

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